Rightly crossing the Rubicon: Evaluating goal self-concordance prior to selection helps people choose more intrinsic goals ☆

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ABSTRACT

We studied how people "cross the Rubicon" when making personal goal selections. In Studies 1 and 2 participants rated the self-concordance of four candidate goals, two with intrinsic and two with extrinsic content, before selecting two goals to actually pursue. Intrinsic goal content predicted higher self-concordance, as did matching between goal content and participant values and motives. Self-concordance in turn explained participants' actual goal-selections. In longitudinal Study 2, intrinsic goal selection predicted increased well-being. In experimental Study 3, participants randomly assigned to rate candidate goals prior to selection made more intrinsic selections on average, compared to those not afforded this opportunity. We conclude that considering one's motivations for various candidate goals prior to selecting among them can improve one's goal choices.

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1. Introduction

People's lives are largely defined by the long-term goal choices they make, that is, by the extended courses of action in which they engage. Do they embark on a career as a professor, or as a lawyer? Do they orient themselves more towards love, or more towards money? Do they decide to write a book, or to run the marathon? The self-concordance model of healthy goal striving (Sheldon, 2014; Sheldon & Elliot, 1999) proposes that it matters which choices people make, and that selecting truly self-appropriate goals is an important skill. People who lack this skill may labor for years or even decades pursuing goals or occupations that do them little good, even if they are successful in those goals. That is, their long-term efforts may bring them to non-optimal possible futures, futures that are not as enjoyable, growth-promoting, or personally expressive (Waterman, 2013), as they could have been.

1.1. The Rubicon and self-concordance models

According to the "Rubicon" model of Action Phases (Gollwitzer, 1990; Heckhausen & Gollwitzer, 1987), people engage in a process of deliberation when considering what goals to pursue. At some point they "cross the Rubicon," to select a particular goal or partic-ular goals from among the options being considered. At this point they enter a new action phase, characterized by an implemental mindset that is focused on enactment, rather than deliberation. During the action phase cognition shifts from weighing information and considering the potential upsides and downsides of various options, to protecting and conserving the choice that has been made and to formulating and enacting plans to obtain that choice.

According to the self-concordance model (Sheldon, 2014), during the deliberation process, people may not succeed in selecting optimal goals for themselves. That is, they may not choose goals that are consistent with their own developmental potentials, goals that would provide channels for these potentials to become manifest. Of course "developmental potentials" is a very broad term, potentially referring to a variety of characteristics including people's evolving intellectual or artistic interests, their implicit motives or preferences, their basic traits or dispositions, or their organismic and psychological needs (Sheldon & Elliot, 1999; Sheldon, 2014). What these characteristics have in common is that people are typically unaware of them, or have difficulty properly weighting them in the goal-selection process. In current parlance, they exist or function within "system 1," the domain of imagistic, parallel, and largely automatic cognition, rather than in "system 2," the domain of verbal, sequential, and largely conscious cognition (Kahneman, 2011; see also Cushman & Morris, 2015, on habitual vs. planful control of goal selection). Because deliberation about long-term goals is a system 2 process, pertinent goal-relevant information may be

unavailable when it comes time to commit and "cross the Rubicon" from deliberation to action (Gollwitzer, 1990), causing the conscious agent to make non-optimal choices. Indeed, novels and film are full of such dilemmas, in which young or struggling characters initially make poor choices, often due to negative social influences, before (hopefully) discovering what they really want, at some deeper level – the thing they seemed meant to do, which allows them to fully thrive and contribute to the world (Sheldon, 2014).

How do we know that some goals better represent people's implicit personality preferences and potentials, compared to other goals that might be chosen? Several experimental studies support this conclusion (Sheldon & Cooper, 2008; Sheldon, Prentice, & Halusic, 2015; Sheldon & Schuler, 2011). In these studies personality is first assessed, after which participants are randomly assigned to pursue goals of one theoretical type or another, during some period of time. After generating their own idiographic exemplars of the assigned goal-type, participants rate their final set of goals. As the self-concordance model hypothesizes, these studies find that when the assigned goal-type matches participant's personality type, the goals are rated higher in self-concordance (the measurement of self-concordance will be considered below). This moderation pattern has been shown for the motive dispositions of need for achievement and need for affiliation, as measured by both explicit (Sheldon & Schuler, 2011) and implicit motive measures (Sheldon et al., 2015). That is, people high in the need for achievement rate their goals as more self-concordant when they are assigned achievement goals, and people high in the need for affiliation rate their goals as more self-concordant when they are assigned affiliation goals. A similar pattern has been shown with respect to people's value orientations. People rate assigned goals as more concordant when the goals express their predominant values, whether those values are predominantly intrinsic (concerning growth, community, and helping) or extrinsic (concerning money, status, and appearance; Sheldon, Ryan, Deci, & Kasser, 2004).

Further supporting the notion that self-concordant goals are in line with people's underlying potentials, initial goal self-concordance has been shown to predict more sustained effort, and thus greater goal-attainment, over time (Sheldon & Elliot, 1998, 1999). Sheldon and Elliot (1998) interpreted this as evidence that self-concordant goals express deeper or more stable aspects of personality, enabling them to be more enduringly energized; they are not just transitory whims. Also, self-concordance has been shown to boost the positive effects of goal-attainment on well-being over time (Sheldon & Elliot, 1999; Sheldon & Kasser, 1998), delivering greater satisfactions than non-concordant goals. Together, these findings suggest that high self-concordance scores may serve as a signal to researchers or counselors that particular goals are suitable for their participants or clients, and are likely to be beneficial. In contrast, low self-concordance scores may signal that a change of course is in order (Burke & Linley, 2007).

1.2. Assessing self-concordance before the Rubicon is crossed

It is noteworthy that *all* prior self-concordance research has used the same procedure: first, participants select the goals they pursue or will be pursuing, and then they rate them. In terms of the Rubicon model of Action Phases (Gollwitzer, 2012; Heckhausen & Gollwitzer, 1987), the extant research has always measured self-concordance *after* the Rubicon has been crossed and deliberation has ceased, i.e. after a final set of goals has been selected. More formally, assessment has always occurred after goals have already been selected and action is now being considered or planned (i.e., in the "pre-actional" phase; Gollwitzer, 2012). However, if self-concordance ratings can really serve as a signal of a goal's fit with the person's implicit motives or potentials, then encouraging participants to explicitly consider the self-concordance of goals during the deliberation process, when the final choice-point is still in front of them, might give them access to more information for choosing among the various salient alternatives and thus facilitate more optimal goal selection.

This was the primary theoretical and methodological innovation of the current studies. Study participants were first asked to rate the potential self-concordance of several experimenter-provided candidate goals. Next, they were asked to select a subset of final goals from the larger set. In this way, the self-concordance methodology was employed at the deliberative or pre-decisional action phase, instead of at the implementation or post-decisional phase. We hypothesized that engaging in this process should have a beneficial effect upon people's goal selections and choices.

Why should there be a positive effect? To explain, it is necessary to consider how self-concordance is measured. Typically, the "perceived locus of causality" (PLOC) methodology of Self-determination theory is used (Deci & Ryan, 2000; Ryan & Connell, 1989), in which participants are asked to rate "why" they do a goal or behavior, on reasons ranging between two extremes of an underlying relative autonomy continuum (Sheldon, Osin, Gordeeva, & Suchkov, 2017). Each goal is thereby located upon the continuum, and an aggregate self-concordance score is created by averaging across goals (Sheldon, 2014). This score represents the extent that the set of goals feels valued and/or enjoyed, rather than forced and/or pressured. The PLOC methodology bypasses the problem that people cannot know directly "which goals would best fit your personality potentials," by merely asking: "which goals would feel most valuable and enjoyable?" Although people cannot know (objectively) "what to want," they can know how they feel about what they *think* they want. The self-concordance model assumes that such feelings can serve as reliable signals of the fit of a goal with underlying personality system (Sheldon & Kasser, 1998), indicating that a good solution has been achieved to the complex parallel constraint-satisfaction process that is goal-selection (Kuhl, 2000; Sheldon, 2017**)**.

We propose that *considering the quality of one's motivations* for doing each of the alternatives, i.e., the degree of internal motivation for each alternative, is a good way to evaluate their desirability or value. This proposal is similar to Gollwitzer's (1990, 2012), which argues that the pre-decisional phase involves deliberating over both the *feasibility and desirability* (or expectancy and value) of wishes, which leads to developing preferences among wishes. In the present work, we are focusing only on desirability, and not on feasibility. Gollwitzer (1990) further suggested that desirability is determined by reflecting on expected pleasantness and unpleasantness of the various alternatives, their potential to elicit positive or negative self-evaluations or evaluations from others, and so forth. The PLOC-based approach differs because it assesses desirability as the extent to which the contemplated goal would be pursued because the goal-topic is interesting, and/or because it the topic allows expression of an important ideal or value, rather than more hedonic concerns of pleasantness. Research suggests that people are generally better off choosing goals for the sake of value congruence rather than hedonic- or self-esteem-based ends (reviewed in Sheldon, 2014).

Why should such feelings provide a reliable signal, from a goal-selection standpoint? From a Rogerian perspective (Rogers, 1964), people have an "organismic valuing process" which typically helps them to improve their choices over time (Sheldon, Arndt, & Houser-Marko, 2003), especially when they attend consciously to the sometimes-subtle outputs of that valuing process (Brown & Ryan, 2003; Rogers, 1964). From this perspective, having the opportunity to pre-rate one's motivations for various alternatives might provide people with important inputs to their own valuing and goal-selection processes.

1.3. Research hypotheses

Below we list the specific hypotheses tested in these studies, explaining how each hypothesis derives from the literature review above. For reference, Fig. 1 presents a schematic diagram illustrating the first five of the study hypotheses.

H1 (.). *People's personalities (i.e. their values and motives) will predict their self-concordance ratings of matching candidate goals, such that candidate goals that fit their personality predilections should be rated higher in self-concordance than goals that do not. This finding would support the experimental findings discussed above in a new way, by showing that personality preferences express themselves not only with respect to assigned goals rated after the Rubicon of goal-selection has been crossed, but also with respect to a larger set of candidate goals rated before the Rubicon is crossed. This would be a significant demonstration because again, research has shown that cognition changes markedly once goal-selections are made. For example, post-decisional dissonance reduction processes come into play, as people seek to rationalize and solidify their commitment* (Gollwitzer, 1990). *Also, self-regulatory processes come into play, as people strategize to mobilize and regulate their motivation for the goal* (Kuhl, 2000), *to make plans and strategies to reach the goal* (Heckhausen & Gollwitzer, 1987), *and to set implementation intentions linking goal-relevant behavior to future situations that will occur* (Gollwitzer, 1999). *To demonstrate that the predicted self-concordance matching effect occurs before the Rubicon is crossed, as well as after it is crossed, would strengthen the evidence for the generalizability of this important effect.*

In studies 1 and 2 we tested H1 by measuring participants' values (their endorsement of more intrinsic goal contents; described below), and also in study 2, their motive dispositions (their needs for achievement and affiliation). We used these scores as predictors of self-concordance ratings for the relevant matching candidate goals. In Fig. 1, this hypothesis is represented by an arrow from personality to rated self-concordance for matching candidate goals.

H2 (.). *Goal-type (intrinsic versus extrinsic) should predict the rated self-concordance of candidate goals, independently of personality. This*

hypothesis relies on the assumption that some kinds of goals are generally more organismically congruent than others (Kasser, 2002), *and thus are likely to feel more self-concordant to everyone, regardless of their personality preferences.* Kasser and Ryan (1993, 1996) *introduced the distinction between intrinsic values such as growth, intimacy, and community, which are said to be directly satisfying of basic psychological needs, and extrinsic values such as wealth, status, and image, which are only indirectly satisfying of needs and whose pursuit may even thwart people's needs (see* Kasser, 2002). *The intrinsic versus extrinsic value distinction refers to a single dimension of goal content, defined by intrinsic goals at one pole and extrinsic goals at the other* (Grouzet et al., 2005). *In line with naming conventions regarding relative autonomy orientation (aka self-concordance), we will henceforth refer to this dimension as relative intrinsic value orientation (RIVO). Past research has shown that RIVO is associated with greater self-concordance* (Sheldon et al., 2004). *H2 merely expects this pattern to manifest in the current data, regarding goals designated as either of an intrinsic or an extrinsic type: candidate goals representing intrinsic values should be rated as more self-concordant, on average, than goals representing extrinsic values. H2 is illustrated in* Fig. 1 *by the arrow from I/E goal-type to self-concordance. In Study 3 we test H2 in a slightly different way, via intrinsic and extrinsic future possible selves, rather than intrinsic and extrinsic future aspirations.*

H3 (.). *Regardless of personality or goal-type, self-concordance measured prior to goal selection should predict which selections are then made. This hypothesis is derived from the idea that self-concordance ratings can act as a signal as to which goals a person should select, aiding in the deliberative process* (Gollwitzer, 2012; Rogers, 1964). *Simply put, people should tend to select the candidate goals that they most expect to identify with and enjoy, and expect to feel the least pressure and coercion while pursuing. H3 is illustrated in* Fig. 1 *by the arrow from self-concordance to selection.*

H4 (.). *Rated self-concordance should mediate both the personality and goal-type effects on choices. This will further support the "signal" idea, showing that feelings of high self-concordance can explain why people of certain personality types choose corresponding goal-types (H1), or why certain goal-types are more frequently chosen, overall*
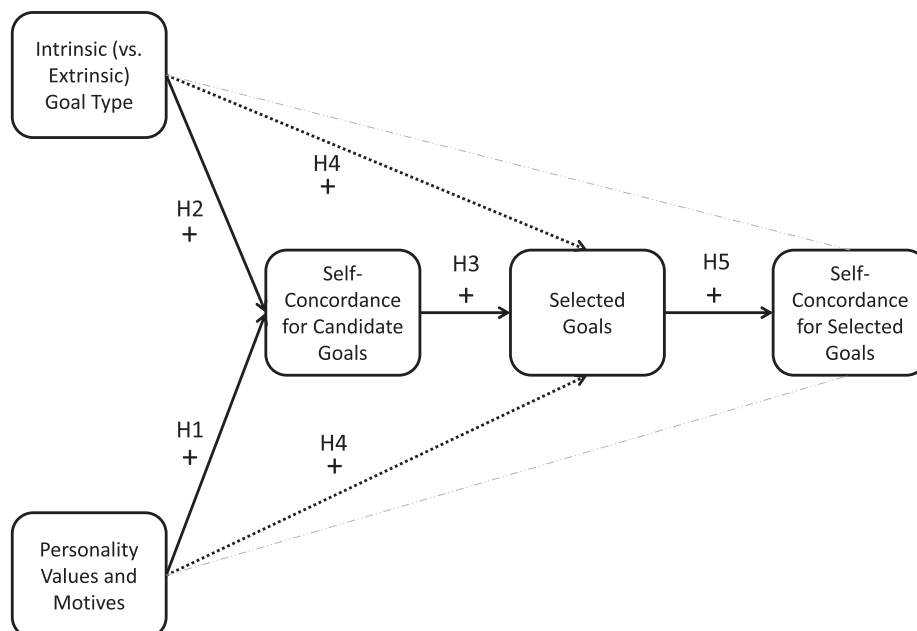

Fig. 1. Conceptual Model Underlying the Studies.

(*H*2). *H*4 *is illustrated in* Fig. 1 *by the dotted arrows leading from personality and goal-type to selection; the dotted nature of the arrow denotes a main effect that is ultimately mediated by self-concordance.*

H5 (.). *Selection will predict increased self-concordance, measured after the selection. This hypothesis is based on the assumption that once goals are selected, people enter the pre-actional phase in which they are motivated to reduce post-decisional dissonance and enhance commitment and engagement with the chosen goal* (Gollwitzer, 1990, 2012). *Thus, even if the goals were already self-concordant, participants will perceive the selected goals as even more self-concordant once the Rubicon is crossed. Since all prior self-concordance research has addressed the pre-actional (or post-decisional) phase, this would suggest that goal self-concordance scores obtained in all previous published research are biased upwards due to the fact that the goals have always already been selected. Of course, whether this is actually a "bias," rather than an adaptive process, is open to interpretation. H5 is represented in* Fig. 1 *by an arrow leading from selection to post-self-concordance.*

H6 (.). *Intrinsic goal-pursuit will predict enhanced SWB over time. This test (in Study 2 but not referenced in* Fig. 1*) would replicate prior findings by* Sheldon et al. (2004), Niemiec, Ryan, and Deci (2009), *and* Sheldon, Gunz, Nichols, and Ferguson (2010), *all showing that intrinsic goal pursuit tends to boost well-being. Such a finding would bolster our assumption that some of the candidate goals we employed are "healthier" than other goals, and thus that the selection of such goals is indicative of the presence of a healthier or more adaptive goal-selection process.*

H7 (.). *Experimentally manipulating the timing of the self-concordance assessment will affect choice of goals. This hypothesis, also not directly referenced in* Fig. 1, *attempts to experimentally test the most important aspect of the model illustrated in* Fig. 1: *the idea that PRE-rating candidate goals can help people make more well-being enhancing (i.e. intrinsic) goal selections. To experimentally confirm this, rather than asking all participants to pre-rate candidate goals, as in Studies 1 and 2, Study 3 asked only half of the participants to pre-rate candidate goals. Consistent with H2, we expected that these randomly assigned participants would make more intrinsic goal choices, compared to control participants. The claim is intuitively simple: Reflecting on one's motivations for the alternatives being considered can help one to make better choices among alternatives, compared to those who do not engage in such reflection. This is presumably a common process in which people engage; H7 merely instantiates it as an experimental manipulation.*

In the first two studies reported herein, we employed convenience samples recruited from a late semester foray into the introductory psychology subject pool (Study 1) and a single college class (Study 2), seeking to maximize N. In Study 3, two semesters' introductory student data were combined. Sensitivity analyses indicated that Study 1, with the smallest N of 130, was sufficiently powered to detect an effect of r = 0.18; Studies 2 and 3, with much larger samples, were sufficiently powered to detect small effects (r > 0.12), by Cohen's (1992) standards. None of the studies were pre-registered.

2. Study 1

2.1. Participants and procedure

In Study 1, 130 Introductory Psychology students (47 male, 82 female, and 1 missing) at the University of Missouri completed an online survey. Participants were 83% Caucasian, with a median age of 19. The survey contained a measure of value orientation (RIVO), followed by a goal assessment module which was introduced as "the main purpose of the study." In the goal module, participants read "We are going to invite you to set two personal goals, and then commit to pursuing those goals during the rest of the semester! Research shows that setting clear personal goals can really pay off for people." Participants then read "we're going to show you four candidate goals. Research shows that all four goals can be beneficial for people." The next screen said "Here are the four goals. Please read each goal carefully. Take a few seconds to think about what it would be like to go after, and how things might go." Candidate 1 was "Get higher grades than my peer group." Candidate 2 was "Learn as much as I can about what interests me." Candidate 3 was "Create, or deepen, a close personal relationship or friendship." Candidate 4 was "Become better known and better networked around campus." Following past research, goals 2 and 3 were designated as intrinsic goal contents, and goals 1 and 4 designated as extrinsic goal contents (Kasser, 2002). The next screen said "Consider your possible motivation for doing each candidate goal. IF you worked on a particular goal, WHY would you work on it? Please rate each of the 4 candidate goals in terms of each of the reasons below." The reasons were the standard self-concordance items, slightly re-worded as hypotheticals. The items are described below. Finally, participants read: "Please again consider the four goals below. Which TWO of them are you most likely to be actively working on this semester? That is, which two are you willing to endorse as your own, this semester?" Participants then click-and-dragged two of the four goals into an on-screen box, indicating that these were the two they had selected.

2.2. Measures

2.2.1. Relative intrinsic value orientation (RIVO)

Participants were given the short form of the aspirations index (Kasser & Ryan, 1996; Sheldon & Kasser, 2008), which asks about values they may have for the future. Participants rated, on a 1 (not at all important) to 5 (extremely important) scale, the importance of six different values, three intrinsic (help those who need help, having close personal relationships, and attaining self-understanding and personal growth) and three extrinsic (projecting an appealing and attractive image, achieving affluence and financial success, and being known and admired by many people). As in past research a relative intrinsic value orientation (RIVO) score was computed by subtracting the extrinsic value items from the intrinsic value items (Kasser, 2002; Sheldon & Kasser, 2008), after person-mean-centering the items to remove a common "value strength" factor. This follows typical measurement practice for locating people on this underlying dimension Grouzet et al., 2005; Sheldon et al., 2017).

2.2.2. Self-concordance

The self-concordance items asked participants why they "might strive" for each candidate goal, in terms of external motivation ("Because somebody else wants you to, or because the situation seems to compel it. Stated differently, you probably wouldn't have this goal if you didn't get some kind of reward, praise, or approval for it, or if you didn't avoid something negative by pursuing it"), introjected motivation ("Because you would feel ashamed, guilty, or anxious if you didn't. Rather than having this goal because someone else thinks you ought to, you feel that you "ought" to strive for that something"), identified motivation ("Because you really believe that it's an important goal to have. Although this goal may once have been taught to you by others, now you endorse it freely and value it wholeheartedly"), and intrinsic motivation ("Because of the enjoyment or stimulation that goal provides you. While there may be many good reasons for the goal, the pri-

mary "reason" is simply your interest in the experience itself"). As in other self-concordance research (Sheldon & Elliot, 1999; Sheldon, 2014), an aggregate self-concordance score was created for each goal by person-mean-centering all items and then subtracting the external and introjected items from the identified and intrinsic items. Sheldon et al. (2017) recently produced new evidence supporting the underlying dimensionality of these items, and further showed that this procedure for computing a relative autonomy index (RAI) efficiently locates people on that dimension.

2.3. Measure evaluation

The self-concordance measure is a relative autonomy index, applied to peoples' personal goals. To evaluate whether the expected dimensional structure (Sheldon et al., 2017) exists within the current data, we performed exploratory non-metric multidimensional scaling analyses based on the correlation matrices of the four motivation items for each goal. The structure indeed conformed to the findings of Sheldon et al. (2017), with the four types of motivation exhibiting the theoretically predicted sequence on the underlying simplex (see Supplement Figure S1). Principal component analysis (PCA) revealed a bifactor structure with nearly uniform loadings of the items on the first dimension (acquiescence or motivation strength) and ordered loadings on the second dimension (autonomy; see Supplement Table S1).

Turning to the RIVO measure: recall that the intrinsic/extrinsic values distinction reflects two poles of a dimension (Grouzet et al., 2005). We used the same PCA procedure as for the self-concordance items to confirm the structure of the value items (Supplement Table S2) and to evaluate the reliability of the RIVO measure. Results revealed that RIVO, like self-concordance, fits a bifactor structure. Therefore, neither RIVO nor self-concordance is unidimensional in a strict sense and they therefore violate key assumptions for Cronbach's alpha reliability (1951; see, e.g., Dunn, Baguley, & Brunsden, 2014 on violations and remediations). At the same time, the sample size in Study 1 is too small for adequate modeling of the bifactor structures of self-concordance and RIVO. For Study 1, we present the familiar Cronbach's alpha (Table 1) and note that some reliabilities were lower than conventional standards, but also note that alpha is a poor estimate of internal consistency reliability in this case. We return to issues of reliability Study 2, with a larger sample for estimating omega, and in the discussion.

3. Results

The most frequently selected goal was the relationship goal (selected by 99/130 participants), followed by the grade goal (72/130), then the learning goal (54/130). Least frequently selected was the social popularity goal (27/125). This asymmetry was expected, given that people typically rate relationship values as most important or desirable and popularity values as least important; the asymmetry does not affect our hypothesis tests.

H1 said that RIVO (relative intrinsic value orientation) would be associated with greater rated self-concordance for the two intrinsic candidate goals, and less self-concordance for the two extrinsic candidate goals, a "matching" hypothesis. As can be seen in the fourth column of Table 1, these four correlations were in the expected directions, although one of them was non-significant. To summarize the pattern we created a relative intrinsic versus extrinsic self-concordance score (RIESC) by adding the self-concordance scores for the two intrinsic goals and subtracting the self-concordance scores for the two extrinsic goals (Sheldon & Krieger, 2014). In a more efficient test of H1 found that this score correlated $r = 0.40$ with RIVO ($p < .001$), meaning that people expect value-congruent goals to be more enjoyable and meaningful, compared to value non-congruent goals. Notably, this finding indicates that extrinsically oriented people expect to enjoy and benefit from pursuing extrinsic goals to a greater extent rather than pursuing intrinsic goals. However such expectations may not be correct, as previous affective forecasting research has shown (Niemiec et al., 2009; Sheldon et al., 2010). This question will be examined anew in Study 2, herein.

H2 said that intrinsic candidate goals would (on average) be rated as more self-concordant than extrinsic candidate goals, replicating past findings (Sheldon & Kasser, 1998). As shown in Table 1, the relationship goal had the highest self-concordance score, while the grade goal had the lowest self-concordance score; the learning and popularity goals came in second and third, respectively. A within-subject MANOVA on the four self-concordance scores, with intrinsic vs extrinsic goal-type as a repeated measure factor with two levels, supported H2 by finding a significant main effect of the intrinsic versus extrinsic factor ($F(1,126) = 50.30$, $p < .001$). People rated the two intrinsic goals, as a set, as more self-concordant on average compared to the set of two extrinsic goals.

H3 said that rated self-concordance would predict goal-selection. To test this we computed a single goal-selection score representing the number of designated intrinsic goals picked by the participant (0, 1, or 2). We then predicted this score from the RIESC score, finding a significant positive correlation of $r = 0.27$, $p = .002$. This finding suggests, perhaps unsurprisingly, that the participants who most expected to enjoy and identify with intrinsic goals (compared to extrinsic goals) were also more likely to actually select more intrinsic goals for pursuit.

H4 said that the effects of a) people's value orientation and b) the goal's content upon goal selection would be mediated by the "signal" of rated self-concordance. Turning first to value orientation, this was borne out for RIVO, which predicted intrinsic goal selection ($\beta = 0.23$, $p = .008$). This coefficient was reduced to $\beta = 0.12$, $p = .191$ when RIESC was controlled. Bootstrapping analyses carried out with the PROCESS macro (Hayes, 2012; model 4) supported the mediational hypothesis, as the 95% CI of the indirect effect did not include zero, $b = 0.03$ [0.01, 0.050], SE = 0.01, and this was corroborated by the typically more conservative Sobel test, $z = 2.33$, $p = .020$. Thus it appears that people's considerations of their own motivations for pursuing various different goals, in advance of selection, affected their choices of what goals to actually pick.

Turning to the goal-content factor required a different modeling approach because the IV, goal type, varied within person along

Table 1
Study 1: Descriptive statistics and correlations.

	Mean (SD)	α	1	2	3	4
1. RIVO	0.276 (0.374)	0.57				
2. Relationship Goal Self-Concordance	2.46 (2.55)	0.71	0.370			
3. Learning Goal Self-Concordance	1.69 (2.61)	0.76	0.101	0.437		
4. Grade Goal Self-Concordance	−0.37 (2.18)	0.67	−0.208	−0.031	0.074	
5. Popularity Goal Self-Concordance	1.02 (2.47)	0.62	−0.180	0.305	0.045	0.260

Note. For correlations ≥ 0.18, p < .05; for correlations ≥ 0.23, p < .01. N = 279.

with the self-concordance ratings and goal selections. (Above, RIVO, the IV, did not vary within person). This required stacking the data on goal type within person and employing multilevel mediational tests with goal as the unit of analysis. First, we found the coefficient for the effect of goal type to selection (the "c" path in Baron & Kenny, 1986, no other predictors), by denoting intercept and goal as random effects, $b = 0.21$, SE = 0.04, $t(1\,2\,9) = 4.83$, $p < .001$. We next employed the INDTEST macro from Bauer et al. (2006), which is analogous to the PROCESS model 4 (Hayes, 2012) but for multilevel models, which conducts mediation tests in a multilevel framework. In this analysis the mediator, self-concordance, was predicted by goal type, $b = 1.97$, SE = 0.28, $t(127) = 7.08$, $p < .001$ (the "a" path of the Baron and Kenny model). And self-concordance, in turn, predicted selection, $b = 0.54$, SE = 0.035, $t(507) = 15.49$, $p < .001$ (the "b" path). Further, the addition of self-concordance reduced the coefficient for goal type to $b = 0.024$, SE = 0.01, $t(507) = 4.26$, $p < .001$ (the "c" path), and bootstrapping revealed that the indirect effect of self-concordance was significant, $b = 0.77$ [0.47, 1.07], SE = 0.15, $z = 5.04$, $p < .001$.

H5 said that self-concordance scores would go up after goal-selection, reflecting the influence of post-decisional cognitive processes upon ratings, once the Rubicon is crossed (Gollwitzer, 1990). We computed aggregate self-concordance scores both for the pre-ratings (separately for each of the four candidate goals) and for the post-ratings (for each of the two selected goals). We found that self-concordance increased at least marginally after selection for three of the four goals: namely, learning ($t(53) = 1.94$, $p = .058$), social popularity ($t(26) = 2.98$, $p < .01$), and relationship ($t(98) = 4.67$, $p < .01$). However, self-concordance did not increase for the grade goal after selection ($t(69) = 0.091$, ns; Ns for these tests differ depending on whether or not the goal was selected).

4. Brief discussion

Study 1 found preliminary support for H1 through H5. People tended to select goals that they had earlier rated as more self-concordant (H3), indicating that people indeed use self-concordance information when assessing the desirability (Gollwitzer, 2012) of the goals they are considering pursuing. Furthermore, the goals that were rated as self-concordant tended to be ones that matched participant's value orientations (H1) and organismic inclinations (H2). Indeed, the self-concordance ratings partially mediated the link between value orientation and goal-choices (H4), suggesting that the information which came to light in these reflections concretely helped participants to pick more fulfilling goals for themselves. Finally, self-concordance ratings increased after the decision was made (H5), indicating that post-decisional cognitive processes may cause participants to bolster or even exaggerate their feelings of self-concordance concerning the selected goals.

5. Study 2

In Study 2 we sought to replicate the main Study 1 findings (H1 to H5). We also sought to generalize the H1 effect to a new personality construct, namely, motive dispositions (Jackson, 1984; McClelland, 1985). We reasoned that participants high in the need for achievement should rate achievement-related candidate goals as more self-concordant, whereas participants high in the need for affiliation should rate affiliation-related goals as more self-concordant. In doing this we employed the same set of four goals as in Study 1, taking advantage of the fact that this goal-set is divisible into achievement ("learn" and "get good grades") and affiliation ("deepen relationships" and "become better networked") goals, as well as being divisible into intrinsic ("learn" and "deepen

relationships") and extrinsic ("get good grades" and "become better networked") goals. We expected that participant's value orientations would continue to predict selection of the latter choice distinction, whereas their motive dispositions would predict the former choice distinction.

We also added a longitudinal well-being assessment to Study 2, hoping to show that it matters what goals participants pursue (H6). We expected that the more intrinsic goals selected by participants, the greater will be their well-being several weeks later.

5.1. Participants and procedure

Study 2 surveyed 278 Social Psychology students at the University of Missouri (86 men, 179 women, and 3 missing; median age 20; predominantly Caucasian) who completed an in-class survey early in the fall semester. The Time 1 survey contained a well-being assessment, followed by a measure of value orientation and a measure of motive dispositions. Participants were then lead through a goal assessment module similar to the assessment of Study 1: they were told they would be selecting 2 of 4 candidate goals to pursue during the semester, and that we would track their progress at those goals. The four candidate goals were the same as in Study 1, with each goal being classifiable as intrinsic or extrinsic and also being classifiable as achievement related or affiliation related. After rating all four goals, participants were asked to select two of them to pursue during the semester, by circling two goals on their questionnaire. The Time 2 survey which included the second well-being assessment was given about 10 weeks later.

5.2. Measures

5.2.1. RIVO and self-concordance
To measure RIVO, participants were again given the short form of the aspirations index. The self-concordance items that were rated before goal-selection were the same as before, and self-concordance scores were again computed for each goal.

5.2.2. Motive dispositions
Participants also completed measures of the need for achievement and the need for affiliation, taken from the Personality Research Form (PRF; Jackson, 1984). The items assess the extent participants are motivated to succeed in tasks requiring skill and effort, and motivated to experience positive relationships with others, respectively. Notably, the PRF is a self-report measure, not an implicit measure, of motive dispositions. Each subscale consists of 16 true–false items, with eight worded positively and eight worded negatively. The latter eight were reversed before computing count scores.

5.2.3. Well-being and goal-progress
We also measured participants' positive affect, negative affect, and life-satisfaction "right now in your life," using the 20-item Positive Affect Negative Affect Schedule (PANAS; Watson, Tellegen, & Clark, 1988) and the 5-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). A single SWB score was computed by standardizing the three scores then subtracting negative affect from positive affect and life-satisfaction (Sheldon & Elliot, 1999; Busseri, 2015). The SWB measurements were repeated 12 weeks later, in an online survey. This allowed us to examine the effects (if any) of pursuing goals of different types upon participants' well-being scores.

At the second time point we also measured participants' attainment of each of their two selected goals, to examine whether intrinsic goal pursuit affects well-being regardless of how well one does at the goals. Each goal was rated on two items, "How well did you do on this goal" and "how hard did you try on this goal." The four

items formed a single factor and were summed to create a single "Semester goal progress" score (alpha = 0.76). Notably, Sheldon and Elliot (1998) showed that likert ratings of goal progress correlated 0.73 with objective goal progress measures derived from goal attainment scaling procedures (Kiresuk & Sherman, 1968).

5.3. Measure evaluation

We performed the same set of exploratory MDS and PCA analyses for the Study 2 RIVO and self-concordance variables, with quite similar findings. Given the larger sample size, we were also able to evaluate the fit of the hypothesized orthogonal bifactor structure to both the RIVO and self-concordance measures using exploratory structural equation modelling (ESEM in Mplus 7). The model fit the data well in all cases (see Supplement Table S3 for details), and allowed for the computation of McDonald's omega (ω; 1999), which is an internal consistency measure suited for many situation in which assumptions for alpha are violated, such as the assumptions for unidimensionality or tau equivalence (Dunn et al., 2014). Omega is interpretable on a 0 to 1 scale like alpha reliability. In all models, the first factor could be interpreted as motivation (or acquiescence) and the second one as relative autonomy, justifying the calculation of the difference scores which remove the acquiescence factor (see Supplement Tables S4 & S5). The reliability coefficients for the measures are presented in Table 2. With the exception of need for achievement, all measures showed conventionally acceptable levels of reliability.

6. Results

The most frequently selected goal was the grade goal (selected by 166/278 participants), followed by the relationship goal (163/278), then the learning goal (142/278). Least frequently selected was the social popularity goal (85/278). Table 2 contains the descriptive statistics and correlations among the major study variables.

H1 said that RIVO would be associated with greater rated self-concordance for the two intrinsic candidate goals, and lower self-concordance for the two extrinsic candidate goals. The four correlations again went in the expected directions, with three of four reaching significance ($rs = 0.21$ and 0.21, $ps < .01$, and $rs = -0.08$ and -0.13, $ps = 0.211$ and 0.037). To summarize the pattern we again created a relative intrinsic versus extrinsic self-concordance score (RIESC) and found that this score correlated $r = 0.31$ ($p < .001$) with RIVO, meaning that self-concordance ratings for goals tended to converge with endorsement ratings for the matching values; that is, people expect value-congruent goals to be more enjoyable, meaningful, and fulfilling, compared to value non-congruent goals.

We then examined the motive disposition data, finding that participants higher in need for affiliation were more likely to report high self-concordance for affiliation goals ($rs = 0.20$ and 0.21, $ps < .01$, for popularity and relationship goals, respectively).

Similarly, participants higher in need for achievement were more likely to report high self-concordance for achievement goals ($rs = 0.16$ and 0.16, $ps < .01$, for grade and learning goals, respectively). No other correlations were significant.

H2 said that intrinsic candidate goals would be rated as more self-concordant than extrinsic goals, on average. As shown in Table 2 the relationship goal again had the highest self-concordance score, while the grade goal again had the lowest self-concordance score; the learning and popularity goals again came in second and third, respectively. A within-subject MANOVA on the self-concordance scores for the four goals, with intrinsic vs extrinsic as a repeated measure factor, formally confirmed H2 by finding a significant main effect of intrinsic versus extrinsic ($F(1,270) = 162.01$, $p < .001$); both popularity and grade goals yielded lower self-concordance scores than relationship and learning goals. We also compared the self-concordance of achievement and affiliation goals in this analysis, venturing no hypotheses because motive disposition theory does not postulate that some motives are more generally adaptive or organismically congruent than others (McClelland, 1985). However, we found a significant main effect of affiliation ($F(1,270) = 50.51$, $p < .01$), indicating that affiliative goals are felt to be more self-concordant than achievement goals.

H3 said that self-concordance scores would predict goal-selection. We computed two goal-selection scores, one representing the number of designated intrinsic goals picked by the participant (0, 1, or 2), and the other, the number of designated achievement goals picked by the participant (0, 1, or 2). Of course, these scores could be reversed such that the number of extrinsic goals and the number of affiliation goals are instead the focus. We predicted the intrinsic goal selection score from the RIESC score, again finding a significant positive correlation of $r = 0.26$ ($p < .001$). In other words, the participants who most expected to enjoy and identify with intrinsic goals (compared to extrinsic goals) were also more likely to actually select more intrinsic goals for pursuit. New to Study 2, we also found that affiliation goals were more often selected the higher the participant was on need for affiliation, compared to need for achievement ($r = 0.14$, $p < .05$). Achievement goals were more often selected by people high in need for achievement, although the correlation was not significant ($r = 0.08$, $p = .21$). Thus, there is some evidence that people select goals not only based on their values, but also, on their motives. As illustrated in Fig. 1, personality affects what "looks good" to people.

H4 said that value orientations, motive dispositions, and goal-type effects on selection would be mediated by self-concordance. We proceed through each of these mediation models in the sequence just listed.

6.1. RIVOxxx

H4 was born out for RIVO, which predicted intrinsic goal selection ($\beta = 0.21$, $p < .001$), a coefficient that was reduced to 0.137

Table 2
Study 2: Descriptive statistics and correlations.

	Mean (SD)	Rel.	1	2	3	4	5	6
1. RIVO	0.35 (0.40)	0.77 [a]						
2. Need for Achievement	0.98 (1.57)	.62 [b]	0.006					
3. Need for Affiliation	1.31 (1.84)	.81 [b]	0.093	0.086				
4. Relationship Goal Self-Concordance	2.88 (2.45)	0.77 [a]	0.210	0.040	0.208			
5. Learning Goal Self-Concordance	2.04 (2.47)	0.71 [a]	0.211	0.142	−0.029	0.330		
6. Grade Goal Self-Concordance	−0.09 (2.31)	0.76 [a]	−0.079	0.159	−0.002	0.006	0.235	
7. Popularity Goal Self-Concordance	1.26 (2.47)	0.80 [a]	−0.128	−0.068	0.209	0.219	−0.074	0.075

Note. Rel. = Reliability. Reliabilities denoted with [a] are McDonald's ω and with [b] are Cronbach's α. For correlations ≥ 0.12, p < .05; for correlations ≥ 0.15, p < .01. N = 278.

when RIESC was controlled. Bootstrapping analyses carried out with the PROCESS macro (Hayes, 2012; model 4) supported the mediational hypothesis, as the 95% CI of the indirect effect did not include zero, b = 0.05 [0.02, 0.01], SE = 0.020, a result reinforced by the Sobel test, z = 3.00, p = .003. Thus it appears that people's considerations of their own motivations for pursuing particular types of goals, in advance of selection, affected their choices of what goals to actually pick.

6.2. Motive dispositions

We next turned to motive dispositions. With regard to the need for achievement, nAch was related initially to selection of achievement goals at β = 0.14, and adding self-concordance to the model reduced this to β = 0.10. The bootstrapped indirect effect was indicative of mediation, b = 0.10 [0.00, 0.02], SE = 0.01, as well as Sobel's test, z = 2.10, p = .036. The association of need for affiliation with affiliation goal selections was only slightly reduced from β = 0.12 to 0.11 when the self-concordance score was entered into the equation. Mediation was not supported via a bootstrapping procedure, indirect effect b = 0.01 [0.00, 0.02], SE = 0.01, as well as Sobel's test, z = 1.59, p = .111.

6.3. Goal type

Turning to goal-type, we again used a multilevel framework to test mediation when the IV varies within person, as employed in Study 1. Again, selection was predicted by goal type, b = −0.25, SE = 0.036, t(276) = 6.87, p < .001. Adding self-concordance for goals to the model via the INDTEST macro by Bauer et al. (2006) revealed that the mediator, self-concordance, was predicted by goal type, b = 1.87, SE = 0.151, t(305) = 12.38, p < .001, and self-concordance, in turn, predicted selection, b = 0.477, SE = 0.03, t(557) = 19.03, p < .001. Further, the addition of self-concordance reduced the coefficient for goal type to b = 0.03, SE = 0.007, t(703) = 4.26, p < .001, and bootstrapping revealed that the indirect effect of self-concordance was significant, b = 1.72 [1.69, 1.757], SE = 0.02, z = 95.46, p < .001.

H5 said that self-concordance scores would go up after goal-selection had occurred (i.e. once the Rubicon was crossed), reflecting the influence of post-decisional cognition upon ratings. Paired-sample t-tests showed this to be the case for all four goals; once selected, paired t-test showed that their rated self-concordance went up (ts = 6.11, 4.19, 3.48, and 3.75 for grade, learning, relationship, and popularity goals, respectively; Ns for these tests differ depending on whether or not the goal was selected). Again, this suggests that all prior self-concordance research has elicited mean self-concordance scores that are likely higher than they were initially, due to post-decisional commitment enhancement and dissonance reduction processes.

H6 said that having selected more intrinsic goals would have a positive effect on participant's well-being 12 weeks later, even controlling for the amount of goal-progress that had been made by the participant. The latter control variable tests whether well-being enhancement effects occur simply because of pursuing the goal, regardless of how the person does on the goal. We tested this hypothesis on the 214 participants who completed the end-of-semester questionnaire. Specifically, we simultaneously regressed time 2 SWB upon three variables: (1) time 1 SWB (to focus the analysis on change in SWB), (2) the number of intrinsic goals chosen earlier in the semester, and (3) goal progress. In this analysis time 1 SWB was a significant predictor (β = 0.618, p < .001), representing stability of the test–retest coefficient. The number of intrinsic goals selected, and Time 2 progress, had β coefficients of 0.10 and 0.11, respectively, with ps of 0.047 and 0.028, respectively. Thus, merely having picked more intrinsic goals in the first

place had the same magnitude of effect as having actually attained one's goals, whatever they were.

7. Brief discussion

Study 2 replicated the primary findings of Study 1, and also extended them in several ways. In terms of Fig. 1, Study 2 tested the influence of personality preferences upon self-concordance and goal-selection in a new way, by finding the same patterns for motive dispositions (achievement and affiliation) as were found for value orientations (intrinsic versus extrinsic). That is, people high in need for achievement tended to give higher self-concordance ratings for achievement-related goals, which partially explained why they also selected more achievement-related goals; and vice versa for people high in need for affiliation. Study 2 also provided more confirmation of H5. Again, self-concordance ratings went up after selection, confirming a central premise of Action Phases theory, namely, that after the Rubicon is crossed, cognitive processes tend to buttress the selections that have been made (Gollwitzer, 2012). Further, Study 2 tested anew a foundational assumption of the research, that intrinsic goal-types are more salubrious for well-being than extrinsic goal-types (Niemiec et al., 2009). The more intrinsic semester goals that were selected by participants, the higher their well-being at the end of the semester, regardless of how much progress they made (or did not make) on those goals.

8. Study 3

Studies 1 and 2 provided insight into the potential functional benefits of considering one's motivations for pursuing various types of goals, prior to making goal selections. Making self-concordance ratings for candidate goals apparently helped participants to express their values and motives in making goal selections, and also helped them to select goals more likely to bring them well-being and fulfillment overall.

However, the first two studies still did not directly compare our new procedure of asking participants to rate self-concordance *prior* to selection, to the normal procedure of only soliciting self-concordance *after* selections are made. Study 3 was an experimental test of a new hypothesis, H7: that merely being prompted to consider one's motivations for potential goals, versus not being so prompted, improves goal-selection. This is potentially our most important hypothesis, because if supported, it shows that our method provides a new way of helping students or clients to make better goal-selections. Here, "improved" goal-sets are defined as those containing more intrinsic goals, an assumption based on past research and Study 2's findings that such goal sets conduce to enhanced well-being over time.

We also tested H7 in a second way. Participants in the control condition engaged in the usual procedure of rating self-concordance only after goal-selection. However, these participants were then offered a chance to revise their initial selections. H7b predicted that these participants would also shift towards intrinsic and away from extrinsic goals (Sheldon et al., 2003), once they had been asked to complete a motivational assessment of their reasons for those goals.

9. Methods

9.1. Participants and procedure

Study 3 participants were 279 undergraduate psychology students at the University of Missouri, 99 men and 165 women (16 non-reporting; median age 19; predominantly White), who partic-

ipated as a course requirement (approximately half the sample) or for extra course credit (the other half of the sample). They completed an on-line survey containing the study tasks and measures.

9.2. Goal-selection task

In Study 3 we modified the goal-selection task to a longer-term framework. Instead of asking participants to choose semester goals, we instead asked them to consider possible selves, defined as "who you might be when you are 40." Then they read "Below are six possible selves that could come true for you – potential aspects of a desirable life you may be living. First, please read through the list. Try to imagine yourself having, and being, each of these possible selves!" We asked participants to select three of the six possible selves, two of which clearly represented extrinsic values (Wealthy/Rich and Famous/Idolized) and four which did not (Generous/Helpful, Wise/Mature, Beautiful/Handsome, and Loved/Loving). The number of extrinsic selves selected was the dependent measure, a variable which could range from 0 to 2.

The experimental manipulation involved assigning some participants to complete a self-concordance assessment *before* making their selections. The 163 participants in this condition read: "How would it feel? In order to reach possible selves, we have to take (or not take) certain actions along the way. These actions may or may not be enjoyable in their own right. Below, please consider how it might actually feel to take action to reach each of the six possible selves." The same self-concordance items as before were presented.

Control participants also completed the self-concordance assessment, but only *after* they had made their three goal selections, with instructions reading "how will it feel?" instead of "how would it feel?" However after making these ratings, the 116 participants in this condition then read: "Now that you have thought about how it might actually feel to go after these possible selves, it is possible that you have changed your mind about which ones you want! Or not? You decide. Below, please drag three Possible Selves into the box, the three that *currently* seem most worthwhile. These may or may not be the same as before." The relative predominance of intrinsic versus extrinsic choices was again the main dependent measure of interest. We predicted that control participants would shift towards more intrinsic goals given this second chance (Sheldon et al., 2003).

10. Results

One hundred and forty-six participants selected no extrinsic possible selves, 129 selected one extrinsic self, and five selected two extrinsic selves, with an average of .49 extrinsic selves selected ($SD = 0.53$). A t-test examining group differences by assigned condition found that experimental participants selected fewer extrinsic goals on average ($M = 0.43$, $SD = 0.52$) than did control condition participants ($M = 0.59$, $SD = 0.54$; $t(278) = 2.61$, $d = 0.47$, $p = .009$).

Furthermore, the control group, when given the chance to switch after making self-concordance ratings, also shifted in their selections, choosing fewer extrinsic goals in the final choice (0.47, down from 0.59; $t(115) = 2.60$, $p = .011$).

11. Brief discussion

Study 3 provided an experimental test of the hypothesis that merely rating the self-concordance of candidate goals prior to selection can promote healthier goal selections; participants in the experimental condition selected more intrinsic relative to extrinsic goals. Also, control participants shifted towards intrinsic

goals when given a second chance, following making initial ratings of goal self-concordance. The latter finding indicates that making self-concordance ratings can be beneficial whenever the opportunity arises to enter (or re-enter) the deliberation phase.

12. General discussion

Although decision science research is a thriving field (Busemeyer, 2015; Lindell, 2014), and although traditional motivation theory devoted considerable attention to how people select among motivational targets (primarily under expectancy-value theory; Eccles & Wigfield, 2002), idiographic personal goal research (Austin & Vancouver, 1996; Emmons, 1989; Sheldon, 2014) has, to date, given very little attention to the goal-selection issue. This is an unfortunate omission because personal goals come with large degrees of latitude in content and consequences (e.g., a young woman deciding between "music" or "engineering" as an academic major, or deciding whether to marry "John" or "David"). Personal goals have large effects on people's well-being and long-term life-course. Furthermore, goal processes are susceptible to many different kinds of social influence, some beneficial and some not (Kasser et al., 2004). Thus, the study of personal goal selection, as a research area, affords new avenues for understanding the dynamics of personality expression and personality change.

In particular, this research area offers promise for understanding how people can "grow themselves" (King, 2002) in life, instead of growing haphazardly (at best) in reaction to accidents, stresses, or traumas. Self-determined personal agency is a potent force for positive change in the world (Deci & Ryan, 1985, 1991), but we know very little about how paragons such as Steve Jobs, Richard Branson, or Barack Obama, get to be who they are. Presumably it involved the long-term personal goals they adopted and achieved, commencing perhaps even in their teenage years. But how did they know what goals to want in the first place?

In this research we studied how people can "cross the Rubicon" to make better goal choices. According to the model, one source of guidance for making such crossings can come from explicitly reflecting on one's motivations for pursuing the various alternatives. Although it may be very difficult for people to know *objectively* what goals they should want, it may be easier for people to know how they *feel* about what they *think* they want, or think they *might* want. Tapping into these feelings might help people to make their own underlying motivations explicit and salient within their minds, aiding them in their decision process. Indeed, we believe that such motivational information is always potentially available to individuals (Sheldon et al., 2003), but that the right questions must be asked for it to emerge within consciousness and thus affect goal selections.

Our results supported this claim, and also showed that the benefits accrue in part because considering potential goal motivations helps people choose goals consistent with their underlying personality preferences. This is not necessarily easy, as shown by prior research on the non-correspondence between implicit and explicit measures of the same motive (McClelland, Koestner, & Weinberger, 1989), and as shown more generally by research on attitude/behavior inconsistency and system 1/system 2 conflicts (Kahneman, 2011). Our data suggest that when people consider adopting an objectively personality-congruent goal, there is a signal that can communicate that congruence to them; namely, the fact that congruent goals feel like they would be interesting and meaningful to pursue, rather than being a burden or a drag. Why do people not routinely use this information? Likely because they are often distracted and overloaded, stressed and distressed, influenced and assailed. Techniques that can help people to better com-

municate with themselves, and make explicit their own latent emotional and motivational knowledge, can be very valuable. For example, mindfulness meditation is a very powerful technique for helping people to discover what is going on inside of them (Brown & Ryan, 2003). Likewise, self-concordance assessments can help people get in touch with what they really want when trying to decide among a range of goal choices (Burton, 2012).

Study 3's experimental design directly supported this causal claim, showing that participants chose fewer extrinsic goals when they were randomly assigned to rate the self-concordance of candidate goals *before* choosing from among that set. Participants who did not get that opportunity chose more extrinsic goals, goals which typically do not enhance, or which even detract from, SWB (Kasser, 2002). However, given a typical post-selection self-concordance assessment, the latter group of participants was still able to switch to more intrinsic goals (better late than never). Notably missing from this picture is a condition in which participants are given the opportunity to switch without rating self-concordance first. Sheldon et al. (2003) showed that participants typically switch towards intrinsic goals with no intercession at all, that is, that there is a "biased shift" towards intrinsic goals that occurs at multiple time-scales from just a few minutes to days to months to years. It may be that including a self-concordance assessment in the interim period boosts or speeds this switching process, but this conjecture awaits further research.

12.1. Limitations and future directions

Generalization is limited in a few key ways worth highlighting here. First, the present studies relied on a relatively small and constrained set of goal-types for participants to consider. Perhaps these sets do not adequately capture the diversity of choices that face people in real life, or the full richness of the goal selection process, limiting generalizability. The goal-sets we used represented major dichotomies in personality theory, including intrinsic/extrinsic, achievement/affiliation, and agency/communion. These dichotomies also represent potentially major sources of conflict in people's lives (e.g.work-life balance concerns, and egocentrism versus allocentrism). However, research that expands the range of goal-candidates and candidate-types considered should examine goal generalization directly. Second, considering generalizability at the level of participants, these studies relied on college students, and the effects may not generalize to adult samples. Still, college students are in the throes of major life decisions, and would seem to provide an excellent target population for examining the life-goal selection processes in which we were interested. Also, the data only came from U.S. participants, and these processes remain to be examined within international samples.

In some places, such as the RIVO variable in Study 1, reliabilities fell below conventional standards of "acceptability," but this was only using conventional measures that are not fit for estimating reliability well. Reliability estimation is somewhat complicated with variables like RIVO and self-concordance due to their underlying structures (cf. Sheldon et al., 2017). That said, we presented results of reliability estimations more appropriate for such structures (i.e., McDonald's omega; McDonald, 1999) when sample size warranted in Study 2, and the reliabilities are acceptable. Although we agree with an anonymous reviewer that low reliabilities can be a cause for concern in some circumstances, taken together the reliabilities we observe generally meet conventional notions of "acceptable."

One avenue for future research is to examine whether and to what extent the present results replicate with measures of implicit motive dispositions. The PRF (Jackson, 1984), employed herein, is an explicit (purely self-report) measure and it is not clear that our findings with this measure would generalize to an implicit

measure such as the Picture Story Exercise (Schultheiss, 2008). Perhaps the matching we observed was not between the deep self and chosen goals, but merely between the self-concept and chosen goals. Notably, however, Sheldon et al. (2015) showed that matching of assigned goals with both implicit *and* explicit motive dispositions predicted rated self-concordance, suggesting that such generalization might be expected. A related avenue for future research is to examine other important goal characteristics, such as approach versus avoidance goal-framing or social desirability. These should examined in addition to the goal-content variables of intrinsic versus extrinsic content, or affiliative versus achievement content.

Related to the point of implicit motive measurement, the present study opens up interesting questions for future research and theory on goal selection processes. As we have noted throughout, rating goal self-concordance prior to selection may help people access system 1 or imagistic system process content to inform their system 2 or verbal system decisions. It may be the imagery based imagining of the self in situated goal pursuits that affords this cross-system accessibility, allows less of a verbal system bias, and facilitates decision-making congruent with the "deeper" personality (Kuhl, 2000). One initial way of examining this notion would be to test whether referential competence, or the ability of the person to represent contents of the verbal system to the imagery system and vice versa (Schultheiss, Patalakh, Rawolle, Liening, & MacInnes, 2011), moderates self-concordance deliberation's effect on personality-congruent goal selection.

12.2. Conclusion

In conclusion, we have shown that asking people to think about their *potential* motivations can provide a useful tool for making goal selections. Although the self-concordance construct has in the past been assessed only after the Rubicon is crossed, assessing self-concordance before the crossing is made may help people pick more fulfilling life-destinations to pursue.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrp.2019.03.001.

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